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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,769	12/21/2001	Hiroko Murakami	1076.1023D2	4629

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EXAMINER

HOLDER, REGINA NEAL

ART UNIT

PAPER NUMBER

2651

DATE MAILED: 02/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/023,769	MURAKAMI ET AL. <i>(P)</i>
	Examiner Regina N. Holder	Art Unit 2651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 19 December 2002.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 25-35 and 51-65 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 25-27,29-35 and 51-65 is/are rejected.
- 7) Claim(s) 28 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
 

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All
  - b) Some \*
  - c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_ .
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) <input type="checkbox"/> Other: _____ .

***Response to Amendment***

1. The amendment filed 12/19/02 has been entered.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 29, 30, and 35 are rejected under 35 U.S.C. 102(e) as being anticipated by Ziperovich (5,459,679).

Regarding claims 29 and 30, Ziperovich teaches a circuit suitable for canceling an offset voltage of an ADC (26) which samples an analog data signal including an analog sinusoidal signal (col. 3 lines 50-62 and col. 7 lines 5-9), a sampling control circuit controlling the ADC so that an interval between the first and third sampling points and an interval between the second and fourth sampling points for said sinusoidal signal each is 180 degrees (col. 9 lines 58-62 and col. 7 lines 14-22), whereby digital signals having first through fourth digital values are output from the ADC in a sampling order (col. 9 lines 3-40), an arithmetic unit for receiving the digital

values and computing an average (col. 9 lines 19-66), and an offset voltage generator (34). See figs. 2 and 3. The examiner is interpreting adding sample values one-half the preamble period apart as the first and third (and second and fourth) sampling points at intervals of 180 degrees. Ziperovich also teaches a signal processor for receiving an analog data signal and recording medium (fig. 1) and offset cancel circuit (42).

Regarding claim 35, these limitations are met in the rejection of claims 29 and 30.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 25, 26, 33, 34, 51-58 and 63-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gusmano et al (5,519,441) in view of Kommrusch (5,552,783).

Regarding claims 25 and 26, Gusmano et al teaches a circuit suitable for canceling an offset voltage of an ADC (2) comprising a comparator (33), an arithmetic unit (32), and an offset voltage generator (31). See fig. 4. Gusmano et al also teaches a signal processor for receiving data information. See col. 7 lines 15-20. However, Gusmano et al does not specifically recite determining whether the digital signal is within a predetermined range.

Kommrusch teaches comparing a digital signal from an ADC and determining whether the digital signal is within a predetermined range. See the abstract.

It would have been obvious to one of ordinary skill in the art at the same time the invention was made to modify the teachings of Gusmano et al to include the teachings of

Kommrusch, motivation being to provide more accurate ADC of the analog signal as set forth in the abstract.

Regarding claim 33, Gusmano et al teaches a method of canceling an offset voltage of an ADC comprising the steps of detecting the offset voltage of the ADC and generating an offset cancel voltage signal. See col. 8 lines 6-63.

Regarding claim 34, Gusmano et al teaches comparing, accumulating the offset change, stopping accumulating to determine an accumulated offset amount, and generating an offset cancel voltage. See col. 8 lines 6-63. However, Gusmano et al does not specifically recite determining whether the digital signal is within a predetermined range.

Kommrusch teaches comparing a digital signal from an ADC and determining whether the digital signal is within a predetermined range. See the abstract.

It would have been obvious to one of ordinary skill in the art at the same time the invention was made to modify the teachings of Gusmano et al to include the teachings of Kommrusch, motivation being to provide more accurate ADC of the analog signal as set forth in the abstract.

Regarding claims 51 and 55, Gusmano et al teaches accumulating the offset change amount if there is a difference in the comparator. See col. 8 lines 47-58. When combined with Kommrusch, which compares to a range, the combination teaches accumulating the offset change amount when the digital signal is not within the offset range value.

Regarding claims 52 and 56, Gusmano et al calculates the offset change amount on the basis of the comparison result and an offset change unit. See col. 8 lines 47-62.

Regarding claims 53 and 57, Gusmano et al teaches supplying the addition result to the offset voltage generator. See col. 8 lines 47-62.

Regarding claims 54 and 58, Gusmano et al teaches supplying an initial value to the offset voltage generator when an offset cancel mode is initiated. See col. 7 lines 55-61.

Regarding claims 63-65, these limitations are met in the rejections of claims 25 and 26.

6. Claims 27 and 59-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gusmano et al (5,519,441) in view of Kommrusch and Satoh et al (5,818,655).

Regarding claim 27, Gusmano et al teaches a signal processor for receiving a data signal and recording medium, data information processing circuit, an ADC (2), offset cancel circuit comprising a comparator (33), an arithmetic unit (32), and an offset voltage generator (31). See figs. 4 and col. 8 lines 6-63. However, Gusmano et al does not specifically recite determining whether the digital signal is within a predetermined range, servo information signal, a servo information signal processing circuit, or a switch circuit and control circuit.

Kommrusch teaches comparing a digital signal from an ADC and determining whether the digital signal is within a predetermined range. See the abstract.

Satoh et al teaches a signal processing circuit for data information and servo information, data information processing circuit (3) and servo information processing circuit (5), an ADC, (20) a switch and control circuit (5), an offset voltage generator (62) for supplying the offset cancel voltage to the ADC. See fig. 1. The switch and control circuit are implied because the servo data is not processed simultaneously or through the ADC. Hence, there must be some means, which switches from processing data information to servo information.

It would have been obvious to one of ordinary skill in the art at the same time the invention was made to modify the teachings of Gusmano et al to include the teachings of Kommrusch and Satoh et al, motivation being to provide more accurate ADC of the analog signal as set forth in the abstract of Kommrusch and to control the head seek and disk rotation as set forth in col. 13 lines 6-11 of Satoh et al.

Regarding claims 59-62, these limitations are met in the rejection of claims 51-58 above.

7. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ziperovich in view of Satoh et al (5,818,655).

Ziperovich teaches a signal processor for receiving a data signal and recording medium, data information processing circuit receiving data information as analog data signal including an analog sinusoidal signal (col. 3 lines 50-62 and col. 7 lines 5-9), an ADC (26), offset cancel circuit (42) comprising a sampling control circuit (col. 9 lines 3-62 and col. 7 lines 14-22), an arithmetic unit for receiving the digital values and computing an average (col. 9 lines 19-66), and an offset voltage generator (34). See figs. 2 and 3c. However, Ziperovich does not specifically recite servo information signal, a servo information signal processing circuit, or a switch circuit.

Satoh et al teaches a signal processing circuit for data information and servo information, data information processing circuit (3) and servo information processing circuit (5), an ADC, (20) a switch, an offset voltage generator (62) for supplying the offset cancel voltage to the ADC. See fig. 1. The switch is implied because the servo data is not processed simultaneously or through the ADC.

It would have been obvious to one of ordinary skill in the art at the same time the invention was made to modify the teachings of Ziperovich to include the servo information

teachings of Satoh et al, motivation being to control the head seek and disk rotation as set forth in col. 13 lines 6-11 of Satoh et al.

Regarding claim 32, Ziperovich teaches the analog sinusoidal signal is a preamble pattern. See the abstract and col. 3 lines 56-62.

***Response to Arguments***

8. Applicant's arguments with respect to claims 25-35 and 51-65 have been considered but are moot in view of the new ground(s) of rejection.

***Allowable Subject Matter***

9. Claim 28 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina N. Holder whose telephone number is (703) 308-4078. The examiner can normally be reached on 6:30 a.m. - 5:00 p.m. Mon.-Thurs.. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (703) 308-4825. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314. Any inquiry of a general nature should be directed to the receptionist whose telephone number is (703) 305-4700.

*Regina N. Holder*  
Regina N. Holder  
Primary Examiner  
Art Unit 2651

rnh  
February 14, 2003